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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,310	07/22/2003	Karl V. Hoose	03-002	7289

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BOHAN, MATHERS & ASSOCIATES, LLC
PO BOX 17707
PORTLAND, ME 04112-8707

EXAMINER	
TRIEU, THAI BA	

ART UNIT	PAPER NUMBER
3748	

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/624,310	HOOSE, KARL V.	
	Examiner	Art Unit	
	Thai-Ba Trieu	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-28 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) 1 is/are allowed.

6)☒ Claim(s) 2,3,14-20,22,23 and 28 is/are rejected.

7)☒ Claim(s) 4-13,21 and 24-27 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 07/22/2003.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The Preliminary Amendment filed on January 16, 2004 is acknowledged.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show ***"piston faces 3A"***, ***"slider valve 7B"***, ***"slot valve 7A"***, and ***"exhaust port 9A"*** (See Paragraph [0051]); and ***"intake port 9B"*** (See Paragraph [0054]) as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective

action in the next Office action. The objection to the drawings will not be held in abeyance.

2.The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character ***"7"*** has been used to designate two different elements (See Figures 5A and 5B); and reference character ***"9"*** has been used to designate two different elements (See Figure 5B). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims ***22-23*** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the recitation of ***"said engine ring being mountable on a shaft"*** in claim 22, and the recitation of ***"said intake manifold***

and said exhaust manifold being mountable on said shaft" in claim 23 render the claims indefinite, since it is not clear that why the engine ring and the intake and exhaust manifold are able to be mounted on the shaft, or under which condition the engine ring and the intake and exhaust manifold are able to be mounted on the shaft; and under which condition the engine ring and the intake and exhaust manifold are not able to be mounted on the shaft.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2-3, 18-20 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noble (Patent Number 1,329,625), in view of Master (Patent Number 6,668,787 B2).

Noble discloses an internal combustion engine comprising:

an engine ring constructed of two concentric rings, one being an outer engine ring (23, 36) and an other being an inner engine ring (24, 35), each ring of said two concentric rings having a C-shaped cross-section having a first seam edge (37), a second seam edge (37), and an engine ring wall therebetween, wherein said first seam edge (37) of said outer engine ring is sealable with said first seam edge of said inner engine ring, and said second seam edge (37) of said outer engine ring is

correspondingly sealable with said second seam edge of said inner engine ring so as to form a torus having an outer circumferential engine wall of a first ring (23, 36) diameter formed by said engine ring wall of said outer engine ring (23, 36), and an inner circumferential engine wall (24, 35) of a second ring diameter formed by said engine ring wall of said inner engine ring (24, 35), said first ring diameter being greater than said second ring diameter (See Figure 5, Page 1, lines 108-112, and Page 2, lines 1-15);

a piston (39, 40) (See Figure 3);

wherein said engine ring has a torus cross-section and said piston has a piston body with a piston face, and wherein said piston body is formed to fit within said torus cross-section (See Figures 3, 5-9);

wherein said engine ring has a self-sealing ring seam (37) that seals said outer engine ring and said inner engine ring (See Figure 5);

wherein said outer engine ring and said inner engine ring (24, 35) each have a seam edge (37), and wherein said seam edge (37) of said outer engine ring (23, 36) mates with said seam edge of said inner engine ring (24, 35) so as to form an overlapping seam that seals against gas leakage when combustion force is applied against said seam (See Figure 5, Page 1, lines 108-112, and Page 2, lines 1-15);

an engine ring seal that fits between said first seam edge of said first concentric ring and said second concentric ring (See Figure 5); and

an air-cooling system (See Figure 4, Page 1, lines 83-89) and excluding an oil-lubrication-and-cooling system (via 49, 50) (See Figure 4, Page 2, lines 99-114).

However, Noble fails to disclose a gas flow valve.

Master teaches that it is conventional in the internal combustion engine art, to utilize a gas flow valve (117) (See Figure 11).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized a gas flow valve, as taught by Master, to improve the control of fluid flow into the Noble internal combustion engine, since the use thereof would have increased the performance and efficiency of the engine.

Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noble (Patent Number 1,329,625), in view of Master (Patent Number 6,668,787 B2), and further in view of either IC Engine Concepts, 2001, (www.appliedthermalsciences.com/projects_engine.htm.), or Parker (Patent Number 6,691,647 B2),

The modified Noble device discloses the invention as recited above; however, fails to disclose low thermal expansion material for fabrication of the engine.

IC Engine Concepts/Parker teaches that it is conventional in the internal combustion engine art, to utilize material for fabrication of said engine including a low-expansion material with self-lubricating properties and a low coefficient of thermal expansion;

wherein said low-expansion material is coated with an insulating and non-oxidizing coating; wherein said coating is silicon carbide; and

wherein said low-expansion material is a carbon reinforced-carbon material (See lines 14-17 of IC Engine Concepts, or Column 3, lines 58-61 of Parker).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized low thermal expansion material for fabrication of the engine, as taught by IC Engine Concepts/Parker, to reduce wear resistance and improve the performance and efficiency of the modified Noble toroidal internal combustion engine.

Allowable Subject Matter

Claim ***1*** is allowed.

Claims ***4-13, 21, and 24-27*** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims ***22-23*** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: The prior art fails to discloses or render obvious the claimed combination for improving a self-lubricating internal combustion engine including:

> *"two concentric rings having a plurality of gas flow valves corresponding in number to the plurality of pistons, wherein the intake valve being assembled directly on the intake-valve piston and the exhaust valve being assembled directly on the exhaust-valve piston".*

Conclusion

The IDS (PTO-1449) filed on July 22, 2003 has been considered. An initialized copy is attached hereto.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Yi (US Patent Number 5,009,206) discloses a rotary internal combustion engine.

- Kecik (US Patent Number 3,900,405) discloses a rotary internal combustion engine.

- Cena (US Patent Number 3,645,239) discloses a rotary piston machine.

- Potter (US Patent Number 3,186,383) discloses an internal combustion engine.

- Myles (US Patent Number 3,087,671) discloses rotary engines, pumps, and compressors.

- Stewart (US Patent Number 3,644,069) discloses a rotary engine construction having liners or coatings on pistons and cylinder walls of material such as asbestos,

fused silica and pyrolitic boron nitride having low thermal conductivity, low coefficient of thermal expansion and high temperature strength to improve combustion efficiency.

- David (US Patent Number 4,662,177) discloses a double free piston external combustion engine having free pistons guided inside a quasi toroidally shaped containing structure, which is constructed with best suited materials having high temperature resistance and low coefficients of thermal expansion such as ceramics, filament reinforced carbon or graphite.

- Mylaeus (Patent Number DE 38 25 354 A) discloses an internal combustion with toroidal cylinder.

- Pierart (Patent Number EP 0 083 892 A2) discloses a rotary machines with pistons having a non-uniform rotational speed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (703) 308-6450. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (703) 308-2623. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TTB
July 1, 2004

Thai-Ba Trieu
Patent Examiner
Art Unit 3748